

**Amendments to the Claims**

The following listing of claims replaces all prior versions and listings of claims in the application.

**Listing of Claims**

Claims 1-14 (canceled)

15. (original): A method of realizing a critical state of oxidation-reduction reaction on the surface of a layer that takes a metal state in a reducing ambient and an oxide state in an oxidizing ambient and shows a catalytic action in the metal state, comprising the steps of:

introducing said layer into a process space;

supplying an oxidizing gas and a vapor of an organic solvent into said process space; and

causing an oxidizing reaction and a reducing reaction on said surface of said layer in said process space,

said oxidizing gas and said vapor being supplied into said furnace with a proportion set such that there is caused an equilibrium between an oxidation reaction caused by said oxidizing gas and a reducing reaction caused by said vapor on said surface of said layer.

16. (original): A method of determining the state of an oxidation-reduction reaction taking place on a layer of a material that takes a metal state in a reducing ambient and an oxide state in an oxidizing ambient, said material showing a catalytic action in said metal state, said method comprising the steps of:

introducing said layer into a process space;

supplying an oxidizing gas and a vapor of an organic solvent into said process space;  
causing an oxidizing reaction and a reducing reaction on said surface of said layer in said process space;  
examining a state of said surface of said layer; and  
determining a ratio of said oxidizing gas and said reducing gas that provides an equilibrium condition in which an oxidizing reaction and a reducing reaction equilibrate.

17. (currently amended): An apparatus for forming a ferroelectric film, comprising:  
a reactor evacuated by a pump;  
a stage provided in said reactor for holding a substrate;  
a first source supplying an oxidizing gas to said reactor;  
a second source supplying a reducing gas to said reactor;  
a third source supplying a gaseous source material of said ferroelectric film to said reactor;  
a detector detecting an oxide film formed on said substrate on said stage; and  
a controller controlling said first through third sources,  
said controller controlling said first and second sources in response to an output of said detector such that there is realized a critical state of oxidation-reduction reaction taking place on a surface of said substrate,

said detector determining the state of an oxidation-reduction reaction taking place on a layer of a material that takes a metal state in a reducing ambient and an oxide state in an oxidizing ambient according to the method as claimed in claim 16.